

REMARKS/ARGUMENTS

By this amendment, claims 1, 14, 29, 44 and 45 have been amended, and claims 8-10, 22, 23, 37 and 38 have been canceled. No new claims have been added to the application. Accordingly, claims 1-3, 5-7, 11-16, 18-21, 24-31, 33-36 and 39-45 are pending in the application. No new matter has been added.

In the prior Office Action, the Examiner rejected claims 1-3, 5-16, 18-31 and 33-35 under 35 U.S.C. §103(a) as being unpatentable over various combinations of prior art references, and made the claim rejections final. In view of the amendments made to claims 1, 14, 29, 44 and 45, reconsideration of the prior rejection of claims 1-3, 5-7, 11-16, 18-21, 24-31, 33-36 and 39-45 is respectfully requested.

The Examiner rejected claims 1-3, 5-10, 12 and 13 under 35 U.S.C. §103(a) as being unpatentable over Jauch, U.S. Pat. 4,504,084, in view of Swiler, U.S. Pat. 6,485,557. For the reasons set forth below, applicant respectfully requests reconsideration of the rejection of claims 1-3, 5-7, 12 and 13.

Jauch discloses a document comprising information that is invisible to the naked eye but which can be recognized through the use of an infrared transmitting and receiving device. Jauch teaches forming a first black color on a document using one or a combination of dyes that looks black in the range of the visible spectrum of wavelengths 400 to 700nm but which is transparent for infrared rays in wavelengths 700 to 1000 nm, then applying an information-bearing marking on the first black color using a second black color (e.g., using printer's black), which has a different degree of transparency or opacity for infrared rays than the dye(s) used to form the first black color on which the information-bearing marking is applied. In this way, the information-bearing mark is not visible with the naked eye because it appears black and the first black color on which it is printed also appears black in the visible spectrum. But, the information-bearing mark can be recognized using an infrared transmitting and receiving device.

Swiler discloses manganese vanadium oxide pigments, which exhibit a dark (black) color in the visible portion of the spectrum but which reflect infrared radiation at an uncharacteristically high level as compared to conventional dark pigments in the

infrared portion of the spectrum. Swiler discloses that such pigments can be incorporated into or applied as a coating onto various substrates for the purpose of reducing heat buildup when exposed to sunlight.

The Examiner concedes that Jauch does not teach the use of any inorganic pigments for any reason. However, the Examiner contends that one having ordinary skill in the art would have found it obvious in view of Swiler to incorporate an inorganic pigment such as disclosed in Swiler in the dyes or inks used in the method according to Jauch because Swiler teaches that pigments can be used in inks and because one would desire to reduce the IR-induced heat buildup.

Applicant agrees that one having ordinary skill in the art might find it obvious to incorporate an inorganic pigment in an ink or dye for the purpose of coloring the ink. However, applicant respectfully disagrees that a person having ordinary skill in the art would be motivated to incorporate an inorganic pigment in an ink or dye for the purpose of reducing the IR-induced heat buildup in the ink. As noted in Swiler, IR-reduced heat buildup can be a problem in architectural, automotive, military, aerospace, industrial and electronic applications. But IR-reduced heat buildup is simply not of any concern whatsoever when one is preparing vital documents such disclosed in Jauch.

To further differentiate the present invention from the prior art, applicant has amended claim 1 to clarify that the mark is formed on the substrate using a laser marking system and a laser marking composition, and then a cover coating material is applied over the mark to form a cover coat that is in the form of a film selected from the group consisting of paint films, porcelain enamel coating films, glass enamel coating films, extruded plastic films and laminated plastic films. This is not taught by Jauch and/or Swiler. In Jauch, the information-bearing mark is applied on top of the first black color and is thus not covered by it. In Jauch, the information-bearing mark is visible to the naked eye, but the information itself is not discernable because the area surrounding the mark appears to the naked eye to be the same color as the mark. Furthermore, the mark formed in Jauch is not a laser mark. It is formed using a printer's ink or dye. And, the information-bearing mark according to Jauch is not covered by a film selected from the group consisting of paint films, porcelain enamel coating films,

glass enamel coating films, extruded plastic films and laminated plastic films. And Swiler contains no teaching that would lead one to from Jauch to applicant's invention as claimed.

Claims 2, 3, 5-7, 12 and 13 depend, either directly or through an intervening claim from claim 1 and are thus patentable over Jauch and Swiler for the same reasons that claim 1 is patentable over Jauch and Swiler.

In the prior Office Action, the Examiner rejected claim 11 under 35 U.S.C. §103(a) as being unpatentable over Jauch and Swiler as applied to claim 1 further in view of Cyr et al., U.S. Pat. 6,138,913. In view of the amendments made to claim 1 and for the reasons set forth below, reconsideration of the rejection of claim 11 is respectfully requested.

Cyr et al. discloses a security document including a barcode that is not visible in the visible portion of the spectrum but which fluoresces when exposed to near infrared radiation. Cyr et al. utilizes an ink containing a fluorescing organic compound such as described in Escano et al., U.S. Pat. 5,614,008, which itself teaches away from the use of inorganic compounds in inks.

The Examiner reasons that one having ordinary skill in the art would have found it obvious to modify Jauch to form the information-bearing mark in the form of a barcode. This may be true, but even if one were to form the information-bearing mark according to Jauch in the form of a barcode, such a mark on a vital document would fail to meet the limitations of claim 1, as amended.

The Examiner rejected claims 14-16, 18-31, and 33-45¹ under 35 U.S.C. §103(a) as being unpatentable over Cyr et al. in view of Swiler. In view of the amendments made to claims 14 and 29, reconsideration of the rejection of claims 14-16, 18-21, 24-31, 33-36 and 39-43 is respectfully requested.

The teachings of Cyr et al. and Swiler et al. have been discussed above and need not be repeated. With respect to claims 14 and 29, the Examiner contends that

¹ The Office Action indicates that claims 44 and 45 were rejected under 35 U.S.C. §103(a) as being unpatentable over Cyr et al. in view of Swiler. However, the text of the rejection of claims 44 and 45 set forth in the Office Action only mentions Jauch and Swiler. Cyr et al. is not mentioned. Accordingly, the rejection of claims 44 and 45 is discussed separately below.

Cyr et al. teaches forming a mark, a mask that covers a portion of the mark and a coating layer that covers both the mark and the mask. Applicant notes that Cyr et al. does not include the word "mask" or any other word that would define the same meaning. Cyr et al. does teach that several coating layers can be applied over the mark formed using the ink containing the organic fluorophoric compound. But Cyr et al. does not teach a "mask" that covers a portion of the mark.

The Examiner reasons that one having ordinary skill in the art would have substituted an inorganic pigment such as disclosed in Swiler for the organic fluorophoric compound present in the ink according to Cyr et al. Again, the motivation for doing so is that Swiler teaches that the pigment can be used in inks and supposedly one having ordinary skill in the art would have found it desirable for some unexplained reason to reduce the IR-induced heat buildup in an authentication mark applied to a substrate.

Applicant respectfully submits that one having ordinary skill in the art would not have found it obvious to include a pigment such as disclosed in Swiler in the ink according to Cyr et al. because the pigment according to Swiler does not fluoresce, which is a necessary property in order for the invention according to Cyr et al. to function as intended. Furthermore, reducing IR-induced heat buildup is generally not an important attribute for an authentication mark. Finally, applicant notes that even if one were to incorporate a pigment such as disclosed in Swiler in the ink used to form the marks according to Cyr et al., the method of forming the marked and coated substrate would not meet the limitations of claims 14 and 29. Claim 14 requires the formation of a mark and/or a contrasting mark using a laser marking system and a laser marking composition. Claim 29 requires the formation of a mark and/or a mask using a laser marking system and a laser marking composition. Neither Cyr et al. nor Swiler teach any such method steps or resulting structure.

Claims 15, 16, 18-21 and 24-28 depend from claim 14, and claims 30, 31, 33-36 and 39-43 depend from claim 29. All such claims are clearly patentable over Cyr et al. and Swiler for the same reasons that claims 14 and 29 are patentable over such references. Reconsideration is thus respectfully requested.

As noted above, the Office Action indicates that claims 44 and 45 were rejected under 35 U.S.C. §103(a) as being unpatentable over Cyr et al. in view of Swiler. However, in the text portion of the Office Action, Cyr et al. is not mentioned at all with respect to claims 44 and 45. Instead, the Examiner discusses Jauch and Swiler.

With respect to claim 44, the Examiner contends that Jauch teaches a mark disposed between a substrate and a cover coating layer that covers the mark. This is not accurate. Jauch actually discloses forming a first black color on a document and then applying an information-bearing marking on the first black color using a second black-colored ink. The second black-colored ink is thus not covered by the first black color or any other subsequent coating layer. And Swiler cannot be relied upon to cure this defect. Applicant further notes that claim 44 has been amended to specify that the claimed non-visible authentication mark is a laser mark, and that the cover coating layer covering the laser mark is in the form of a film selected from the group consisting of paint films, porcelain enamel coating films, glass enamel coating films, extruded plastic films and laminated plastic films. This is simply not taught or suggested by Jauch or Swiler. Reconsideration is thus respectfully requested.

With respect to claim 45, the Examiner contends that Jauch teaches an article marked with a mark disposed between a substrate and a cover coating layer that covers the mark. Again, this is not accurate. As noted above, Jauch discloses forming a first black color on a document and then applying an information-bearing marking on the first black color using a second black-colored ink. The second black-colored ink is thus not covered by the first black color or any other subsequent coating layer. And Swiler cannot be relied upon to cure this defect. Applicant further notes that claim 45 has been amended to specify that the claimed non-visible authentication mark is a laser mark, and that the cover coating layer covering the laser mark is in the form of a film selected from the group consisting of paint films, porcelain enamel coating films, glass enamel coating films, extruded plastic films and laminated plastic films. This is simply not taught or suggested by Jauch or Swiler. Reconsideration is thus respectfully requested.

In light of the foregoing, it is respectfully submitted that the present application is in a condition for allowance and notice to that effect is hereby requested. If it is

determined that the application is not in a condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 18-0160, our Order No. FER-15400.001.001.

Respectfully submitted,

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